

# Clariflow® Biological Grade

Low Protein-Binding PES Membrane with Superior Fluid Flow Rates

Clariflow Biological Grade cartridges have been developed and optimized to assure end-product purity and stability in the filtration of water, buffers, culture media, biologicals and other solutions used in the pharmaceutical industry.

Clariflow's unique mirrored-anisotropic Polyethersulfone (PES) membrane produces a cartridge with exceptionally high flow rates, long on-stream life, and consistent removal of microorganisms and inorganic particulates.

Clariflow is inherently hydrophilic and contains no added surfactants or wetting agents. The PES membrane also exhibits low protein-binding characteristics, is biologically inert, and bacterial retentive.

Each cartridge is fabricated in a cleanroom environment, pre-flushed with ultrapure deionized water, and 100% integrity tested prior to shipment.



## Benefits

- High flow rate reduces processing time
- Qualitative bacterial retention reduces initial bioburden
- Non-pyrogenic for use in critical applications
- Long service life minimizes change-out frequency
- Biologically inert and low protein-binding nature maximizes product yields

## Applications

- Pharmaceutical Intermediates
- Bacterial Growth Media
- Parenteral Solutions
- Reagent Chemicals
- Make-Up Water
- Vaccines



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## Liquid Flow Rates\*

### 10 inch (250 mm) cartridges:

|         |                                   |
|---------|-----------------------------------|
| 0.10 µm | 1.8 gpm/psid (9.88 lpm/100 mbar)  |
| 0.20 µm | 3.7 gpm/psid (20.31 lpm/100 mbar) |
| 0.45 µm | 4.8 gpm/psid (26.35 lpm/100 mbar) |
| 0.65 µm | 8.9 gpm/psid (48.86 lpm/100 mbar) |
| 0.80 µm | 9.5 gpm/psid (52.16 lpm/100 mbar) |

### 5 inch (130 mm) cartridges:

|         |                                   |
|---------|-----------------------------------|
| 0.10 µm | 0.75 gpm/psid (4.12 lpm/100 mbar) |
| 0.20 µm | 1.5 gpm/psid (8.24 lpm/100 mbar)  |

\*For fluids with viscosity of 1 cP

## Materials of Construction

Membrane: Polyethersulfone  
Support Layers: Polypropylene  
Structure: Polypropylene

## Biological Safety

All components meet USP-XXIV Class VI-121°C criteria and are thermally bonded to assure integrity and reduce extractables.

## Maximum Operating Differential Pressure

Forward: 80 psid (5.5 bar) @ 75°F (24°C)  
40 psid (2.8 bar) @ 180°F (82°C)  
Reverse: 50 psid (3.4 bar) @ 75°F (24°C)

## Drug Master File

No. 11825, registered with the U.S. FDA

## Steam Sterilizable and Sanitizable

Cartridges with encapsulated insert may be Steamed or Autoclaved up to 50 times @ 275°F (135°C). Cartridges may also be chemically sanitized in place using common sanitizing agents.

## Bacteria Retention

Typical bacteria retention of up to 10<sup>7</sup>/cm<sup>2</sup> as per HIMA methodology (ASTM F838-83) for 0.1 µm and 0.2 µm using *Brevundimonas diminuta* and 0.45 µm using *Serratia marcescens*.

## Integrity Test Values

| Filter Rating  | Bubble Point* |      | Diffusional Flow |      |     |
|----------------|---------------|------|------------------|------|-----|
| µm             | psig          | bar  | cc/min           | psig | bar |
| 5" Cartridges  |               |      |                  |      |     |
| 0.1            | 28*           | 1.9* | 24               | 55   | 3.8 |
| 0.2            | 45            | 3.1  | 12               | 32   | 2.2 |
| 10" Cartridges |               |      |                  |      |     |
| 0.1            | 28*           | 1.9* | 40               | 55   | 3.8 |
| 0.2            | 45            | 3.1  | 20               | 32   | 2.2 |
| 0.45           | 30            | 2.1  | 20               | 24   | 1.7 |
| 0.65           | 17            | 1.2  | 20               | 13   | 0.9 |
| 0.8            | 15            | 1.0  | 20               | 11   | 0.8 |

\*In a 60%/40% solution of IPA/DI Water.

## Ordering Information

Each cartridge is identified with a product number, pore size, and lot number for traceability.

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| Insert Style |                                   | End Fitting |             | Nominal Length |              | Filter Rating |        | O-Rings |          |
|--------------|-----------------------------------|-------------|-------------|----------------|--------------|---------------|--------|---------|----------|
| CODE         | DESCRIPTION                       | CODE        | DESCRIPTION | CODE           | LENGTH       | CODE          | MICRON | CODE    | MATERIAL |
| 1            | None (STD)                        | 2           | 226/Flat    | 05             | 5" (130mm)   | 001           | 0.1    | 0       | Buna N   |
| 5            | Encapsulated 316L Stainless Steel | 3           | 222/Flat    | 10             | 10" (250mm)  | 002           | 0.2    | 1       | EPDM     |
| 6            | Encapsulated Polysulfone          | 7           | 226/Fin     | 20             | 20" (500mm)  | 004           | 0.45   | 2       | Silicone |
|              |                                   | 8           | 222/Fin     | 30             | 30" (750mm)  | 006           | 0.65   | 4       | Viton®   |
|              |                                   |             |             | 40             | 40" (1000mm) | 008           | 0.8    | N       | None     |

## TECHNICAL SUPPORT and PRODUCT ORDERING

Parker Process Advanced Filtration provides unsurpassed product consistency and cost-efficiency for our customers. Our experienced professionals can help you select the right solution for your application. For more information or to place an order, contact your local distributor. Information on product specifications, applications and chemical compatibility can be found on our web site at [www.parker.com](http://www.parker.com) or through your nearest Parker Process Advanced Filtration office. Parker Process Advanced Filtration designs and manufactures an extensive line of innovative solutions for specific applications in Biopharmaceutical, Microelectronics, Food & Beverage, Industrial and Chemical industries.

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